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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,330	01/15/2004	Kurt J. Korkowski	I69.12-0614	6390

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EXAMINER	
KAYRISH, MATTHEW	
ART UNIT	**PAPER NUMBER**
2627	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/758,330	KORKOWSKI ET AL.	
	Examiner	Art Unit	
	Matthew G. Kayrish	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 and 6-20 are rejected under 35 U.S.C. 103(a) as being anticipated by Mohajerani et al (US Patent Number 6381101), in view of Nagahiro et al (US Publication Number 2003/0218833).

Regarding claim 1, Mohajerani et al disclose:

A body (figure 1, item 116); and

A shielding feature (figure 2, item 164) extending from the body in a cantilevered configuration (figure 2, item 164 extends like a cantilever) for reducing windage excitation of the head gimbal assembly (column 4, lines 30-51).

Mohajerani et al fails to specifically disclose:

An endcap.

Nagahiro et al disclose:

An endcap (figure 2, item 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the endcap of Nagahiro et al onto the shielding feature of Mohajerani, as taught by Nagahiro et al, because this will suppress the arm vibrations while the disc is rotating, as noted in paragraph 37.

Regarding claim 2, Mohajerani et al disclose:

The endcap of claim 1 wherein the endcap is connected to the actuator arm at the body (figure 1, item 113 connects to item 114).

Regarding claim 3, Mohajerani et al disclose:

The endcap of claim 2, wherein the shielding feature includes a balancing portion (figure 2, item 168) and a shielding portion (figure 2, item 166).

Regarding claim 6, Mohajerani et al disclose:

The endcap of claim 1, wherein the shielding feature is structured to divert an airflow proximate to a portion of the head gimbal assembly that experiences windage excitation (column 3, lines 12-19).

Regarding claim 7, Mohajerani et al disclose:

The endcap of claim 6 wherein the shield is structured to divert airflow away from a windward side of the head gimbal assembly (column 3, lines 12-19).

Regarding claim 8, Mohajerani et al disclose:

The endcap of claim 1 wherein the head gimbal assembly further comprises a load beam (figure 2, item 144), a gimbal (figure 2, item 146), a transducing head (figure 2, item 118), and a flexible interconnect circuit (figure 3, item 156), and wherein the

shielding feature is structured to divert an airflow proximate to a critical portion of the flexible interconnect circuit (column 4, lines 30-50).

Regarding claims 9 and 10, Mohajerani et al fails to specifically disclose:

Wherein the endcap is disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y direction causes excitation of the head gimbal assembly, the shielding feature having a shape disposed in an X-Y/X-Z plane for controlling the airflow, wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm.

Nagahiro et al disclose:

The endcap of claim 1 disposed in relation to an X, Y and Z coordinate system, wherein an airflow in a substantially Z/Y (out-plane direction/in-plane direction) direction causes excitation of the head gimbal assembly (paragraph 49 & 69), the shielding feature having a shape disposed in an X-Y/X-Z plane (shielding feature device has a 3 dimensional shape) for controlling the airflow (figure 2, item 12), wherein the substantially X-Y/Y-Z plane is defined substantially parallel to the actuator arm/an axis of rotation of the actuator arm (paragraph 49).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the damping system of Nagahiro et al into the shielding system of Mohajerani et al, because this will provide for multi-dimensional damping which will provide a more stable slider, as noted in paragraphs 48 & 49.

Regarding claim 11, Mohajerani et al disclose:

A head actuation system comprising:

An actuator arm (figure 1, item 114);

A head gimbal assembly (figure 2, item 116) for carrying a transducing head (figure 2, item 118), the head gimbal assembly connected to the actuator arm (column 4, lines 58-59); and

A shield (figure 2, item 164) having a first portion attached to the actuator arm (column 5, lines 35-42) and a second cantilevered portion (figure 2, item 166) for reducing airflow excitation of the head gimbal assembly (column 6, lines 5-9 & 16-21).

Regarding claim 12, Mohajerani et al disclose:

The head actuation system of claim 11 wherein the head gimbal assembly comprises:

A baseplate (figure 2, item 168) functioning as the shield, the baseplate having a body portion attached to the actuator arm (column 5, lines 35-42) and a shielding portion (figure 2, item 166) for reducing airflow excitation of the head gimbal assembly (column 6, lines 5-9 & 16-21);

A load beam (figure 2, item 144), wherein the baseplate is attached to a first end of the load beam (figure 2, item 168 is attached to the proximal end of item 144);

A flexible interconnect circuit adjacent to the load beam (figure 2, item 152) and electrically connected to the transducing head (column 4, lines 16-20);

A gimbal attached to a second end of the load beam (figure 2, item 146); and

A slider supported by the gimbal (figure 2, item 120), the slider disposed to support the transducing head (figure 2, item 118).

Regarding claim 13, Mohajerani et al fails to specifically disclose:

Wherein the shield comprises an end cap having a body and a symmetrical protrusion from the body.

Nagahiro et al disclose:

Wherein the shield comprises an endcap having a body and a symmetric protrusion from the body (figure 2, item 12 is symmetric about an axis drawn down the length, down the center of the actuator arm).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the actuator of Mohajerani et al with a symmetric endcap, as taught by Nagahiro et al, because this will damp vibrations along the entire width of the actuator arm, which makes a more improved damping effect. This is noted in paragraph 37.

Regarding claim 14, Mohajerani et al fails to specifically disclose:

Wherein the protrusion is T-shaped (figure 2, item 12 is T-shaped).

Nagahiro et al disclose:

Wherein the protrusion is T-shaped (figure 2, item 12 is T-shaped).

Regarding claim 15, Mohajerani et al disclose:

The head actuation system of claim 11 wherein the shield comprises an endcap having a body (figure 2, item 144) and a plurality of protrusions from the body (figure 2, items 164, 264 and 364).

Regarding claim 16, Mohajerani et al disclose:

The head actuation system of claim 15 wherein the endcap is symmetrical with respect to an axis extending along a center length of the load beam (figure 2, item 144 is symmetrical with respect to a center line drawn along the length of item 116).

Regarding claim 17, Mohajerani et al disclose:

The head actuation system of claim 16, wherein the protrusions form substantially a "C" shape (figure 2, area between items 166 form a “C”).

Regarding claim 18, Mohajerani et al disclose:

The head actuation system of claim 17 wherein each protrusion has a first portion (figure 2, item 168) and a distal portion (figure 2, item 166), the first portion defines a plane, and the distal portion is non-planar with the first portion (figure 2, items 166 & 168 are nonplanar).

Regarding claim 19, Mohajerani et al disclose:

A shielded head actuation system comprising:

A rotatable actuator arm (figure 1, items 114 & 116 make the arm);

A head gimbal assembly attached to a first side of the actuator arm (figure 2, items 118, 120 and 146);

A rotatable magnetic disc (figure 1, item 108); and

A body attached to the actuator arm (figure 2, item 164) and a symmetrically balanced shape feature (figure 2, item 164 is symmetric), wherein the body is attached to a second side of the actuator arm opposite the head gimbal assembly (figure 2, item 164 is at the more proximal end of the actuator arm) such that the shape feature is positioned adjacent to the head gimbal assembly (figure 2, item 164 is adjacent to the

gimbal) to reduce airflow excitation of the head gimbal assembly (column 4, lines 30-51).

Mohajerani et al fails to specifically disclose:

An endcap.

Nagahiro et al disclose:

An endcap (figure 2, item 12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the shielding feature of Mohajerani et al into an endcap, as taught by Nagahiro et al, because this will suppress the arm from suppressing upwards away from the disc.

Regarding claim 20, Mohajerani et al disclose:

The shielded head actuation system of claim 19 wherein the symmetrically balanced shape feature is disposed proximate to an excitable portion of the head gimbal assembly (figure 2, item 164 is at the proximate end of the head gimbal assembly) to control excitation of the head gimbal assembly caused by airflow generated by rotating the magnetic disc (column 4, lines 30-51).

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohajerani et al, in view of Nagahiro et al in view of Yim et al (US Patent Number 6950282).

Regarding claim 4, Nagahiro et al fail to disclose:

An endcap with a shielding feature with a body, wherein the body is connected to the actuator arm, and the shielding feature is not connected to the actuator arm.

Yim et al disclose:

An endcap with a shielding feature with a body, wherein the body is connected to the actuator arm (figure 4, item 42b is connected to actuator arm [22]), and the shielding feature is not connected to the actuator arm (figure 3, item 50 is not connected to actuator arm [22]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the motion limiter, of Yim et al, onto the actuator of Nagahiro et al, because a shielding feature is supposed to limit vibrations caused by the turbulence created by the rotating discs. This vibration can vibrate the magnetic head of the disk drive off of the disk. This can thereby cause valuable information to be lost in the process. The motion limiter can be placed on the actuator arm to prevent the vibrations of the head to lift the head too far off the disk. This will thereby prevent any information to be lose. Yim et al cites this in column 3, lines 18-28.

Regarding claim 5, Mohajerani et al and Yim et al fail to specifically disclose:

A endcap, wherein the balancing portion is shaped so the endcap is symmetric with respect to the shielding portion and the balancing portion.

Nagahiro et al disclose:

An endcap, wherein the balancing portion is shaped so the endcap is symmetric with respect to the shielding portion and the balancing portion (figure 2, item 12 is symmetric about an axis drawn down the length, down the center of the actuator arm).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the actuator of Mohajerani et al and Yim et al with a symmetric endcap, as taught by Nagahiro et al, because this will damp vibrations along the entire width of the actuator arm, which makes a more improved damping effect. This is noted in paragraph 37.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew G. Kayrish whose telephone number is 571-272-4220. The examiner can normally be reached on 8am - 5pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew G. Kayrish 1/23/2007

MK

1/23/07

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PRIMARY EXAMINER